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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,182	03/10/2004	Fermin Viteri	3004.001	5289

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EXAMINER

RODRIGUEZ, WILLIAM H

ART UNIT	PAPER NUMBER
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3746

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/798,182

Applicant(s)

VITERI, FERMIN

Examiner

William H. Rodriguez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-25 is/are allowed.
- 6) ☒ Claim(s) 26,27,31 and 32 is/are rejected.
- 7) ☒ Claim(s) 28-30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/17/04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☒ Other: 5 pages attachment

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 26, 27, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dorf et al. "The Engineering Handbook-1996"** in view of **Papis (U.S. 4,438,809)**.

With respect to claim 26, **The Engineering Handbook (TEHB)** teaches a reheat heat exchanger comprising in combination: a casing; a pair of tube sheets interfacing with said casing; a plurality of tubes extending between said tube sheets, a 1<sup>st</sup> inlet located adjacent at least one of said tube sheets; a 1<sup>st</sup> outlet located adjacent at least one of said tube sheets and opposite said 1<sup>st</sup> inlet, a 1<sup>st</sup> path extending between said 1<sup>st</sup> inlet and said 1<sup>st</sup> outlet, said 1<sup>st</sup> path defined at least partially by interiors of said tubes; a 2<sup>nd</sup> inlet passing through said casing; a 2<sup>nd</sup> outlet passing through said casing; and a 2<sup>nd</sup> path extending between said 2<sup>nd</sup> inlet and said 2<sup>nd</sup> outlet and in contact with an exterior surface of said tubes. **TEHB** does not specifically mention that the 1<sup>st</sup> inlet, 1<sup>st</sup> out and 1<sup>st</sup> path are high pressure or that the 2<sup>nd</sup> in let, 2<sup>nd</sup> outlet and 2<sup>nd</sup> path are low pressure. However, **TEHB** teaches that this type of reheat heat exchanger (commonly used in power plants) can be custom designed for almost any capacity, working fluid type, operating pressure, and temperature conditions. Yet further, **Papis** teaches that a typical reheat heat exchanger includes a high-pressure fluid inlet, a high-pressure fluid outlet, a low-pressure fluid inlet and a low-pressure fluid outlet. Therefore, it would have been obvious to one of ordinary

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skill in the art at the time the invention was made to have concluded that the reheat heat exchanger disclosed in TEHB was to operate with a high-pressure fluid and a low-pressure fluid as taught by Papis. See **Figure 50.2** and pages 531-533 of TEHB (attached to office action) and **Figure 5** of Papis.

**Note:** The “Shell-and Tube Heat Exchanger” claimed by applicant to be the invention is well known and commonly used in the art. For instance, see Figure 50.2 of The Engineering Handbook (attached to office action) or U.S. references 6,808,017 and 4,118,944 just to name a few.

With respect to claim 27, **The Engineering Handbook (TEHB)** teaches that the reheat heat exchanger further comprises a plurality of baffles located within said casing and between said low pressure inlet and said low pressure outlet, said baffles configured to lengthen said low pressure path between said low pressure inlet and said low pressure outlet. See **Figure 50.2** and pages 531-533 of TEHB (attached to office action).

With respect to claim 31 and 32, the temperatures claimed are typical in this type of application (power plants). Further, **TEHB** teaches that this type of reheat heat exchanger can be custom designed for almost any capacity, working fluid type, operating pressure, and temperature conditions. See **Figure 50.2** and pages 531-533 of TEHB (attached to office action).

***Allowable Subject Matter***

3. Claims 1-25 are allowed.

With respect to claim 1, the following is an examiner's statement of reasons for allowance: the prior art of record neither discloses nor makes obvious the combination set forth

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in the independent claims, and especially does not show “*a reheat heat exchanger having a high pressure inlet downstream from said high temperature high pressure source of working fluid; an expander having an inlet downstream from said high pressure outlet and a discharge, said expander adapted to expand the working fluid therein from a higher pressure to a lower pressure; and said discharge of said expander upstream from said low pressure inlet of said reheat heat exchanger*”, in combination with the other claim limitations.

Note: The closest prior art, Figure 50.2 of The Engineering Handbook teaches the structure of the reheat heat exchanger as claimed. However, it fails to teach combining said reheat heat exchanger with at least one expander in the manner claimed by the invention.

With respect to claim 19, the following is an examiner's statement of reasons for allowance: the prior art of record neither discloses nor makes obvious the combination set forth in the independent claims, and especially does teach a method for enhancing efficiency of a power generation system having “*a first working fluid expander and a second working fluid expander downstream from the first working fluid expander, the method including the steps of: locating the reheat heat exchanger with the high pressure inlet downstream from the source of high temperature high pressure working fluid, the high pressure outlet upstream from the first working fluid expander, said low pressure inlet located downstream from a discharge of the first working fluid expander, and the low pressure outlet located upstream from the second working fluid expander*”, in combination with the other claim limitations.

Note: The closest prior art, Figure 50.2 of The Engineering Handbook teaches the structure of the reheat heat exchanger as claimed. However, it fails to teach a method

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comprising the steps mentioned above and combining said reheat heat exchanger with at least two expanders in the manner claimed by the invention.

Claims 28-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Claims 26, 27, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over the U.S. references 6,808,017 or 4,118,944 in view of Papis (U.S. 4,438,809). Examiner suggests careful consideration of these references when amending the rejected claims.

### ***Contact information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Rodriguez whose telephone number is 571-272-4831. The examiner can normally be reached on Monday-Friday 7:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl J Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William H. Rodriguez  
Examiner  
Art Unit 3746